

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003876**Date Inspected:** 14-Aug-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower & OBG**Summary of Items Observed:**

The Caltrans Quality Assurance (QA) Inspector Charlie Franco was present at the time requested to randomly observe welding and associated operations being performed for the Tower and Orthotropic Box Girders (OBG).

**OBG Bay 1:**

The QA Inspector randomly observed ZPMC welders Xu Guo Yin ID Number 059443, Chen Jie ID Number 059468, Xiang Huan Feng ID Number 059416 and Xiang Jie ID Number 059378, utilizing Gantry 2 mounted welding apparatus with the Gas Metal Arc Welding (GMAW) Process in the 2G (Horizontal Groove) Position with ZPMC Weld Procedure Specification (WPS) WPS-B-T-2342-U1(U-Rib)-3, to weld the root pass of the U-Ribs to 5-Rib Deck Plate Sub-Assembly 2BW-DP228-001 at Weld Joint (WJ) Numbers DP228-001-003/004(U-79) and 007/008(U-78). The QA Inspector randomly observed ZPMC QC monitoring weld parameters under the supervision of ZPMC CWI Sun Wei. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 378/386 amps, 30.3/30.6 volts (WJ's 003/004) for Mr. Xu/Mr. Chen; and 378/373 amps, 30.6/31.1 volts (WJ's 007/008) for Mr. Xiang/Mr. Xiang Jie with a travel speed of 525 millimeters (mm) per minute for all welders. The weld parameters appeared to comply with contract requirements. The attached photograph provides additional detail.

The QA Inspector randomly observed 4 ZPMC helpers utilizing angle grinders to blend the tack welds attaching the U-Ribs to 5-Rib Deck Plate 8BW-DP174-001 at WJ's 001/002(U-86), 003/004(U-88), 005/006(U-91), 007/008(U-84) and 009/010(U-73).

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The QA Inspector randomly observed ZPMC Non-Destructive Testing (NDT) Technician Cai Xin Xin, utilizing the Magnetic Particle Testing (MT) Method to perform the final examination of the tack welds attaching the U-Ribs to 3-Rib Deck Plate DP309-001 at WJ's 001/002(U-77), 003/004(U-62) and 005/006(U-95). Mr. Cai informed the QA Inspector that there had been 4 non-linear indications observed during the initial MT. There appeared to be no indications and Mr. Cai accepted the MT of the tack welds.

The QA Inspector randomly observed ZPMC welders Xu Guo Yin ID Number 059443, Chen Jie ID Number 059468, Xiang Huan Feng ID Number 059416 and Xiang Jie ID Number 059378, utilizing Gantry 2 mounted welding apparatus with the Submerged Arc Welding (SAW) Process in the 2G(2F) (Horizontal Groove/Horizontal) Position with ZPMC WPS-B-T-2342-U1(U-Rib)-3, to weld the cover pass and reinforcing fillet of the U-Ribs to 5-Rib Deck Plate Sub-Assembly 2BW-DP228-001 at Weld Joint (WJ) Numbers DP228-001-003/004(U-79) and 007/008(U-78). The QA Inspector randomly observed ZPMC QC monitoring weld parameters under the supervision of ZPMC CWI Sun Wei. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 678/678 amps, 25.0/25.1 volts (WJ's 003/004) for Mr. Xu/Mr. Chen; and 683/685 amps, 24.8/25.3 volts (WJ's 007/008) for Mr. Xiang/Mr. Xiang Jie with a travel speed of 511 mm per minute for all welders. The weld parameters appeared to comply with contract requirements.

OBG Bay 2; No contract welding being performed.

OBG Bay 3:

The QA Inspector randomly observed ZPMC welders Bai Jin Hu ID Number 067756 and Du Henghua ID Number 037779 utilizing the Shielded Metal Arc Welding (SMAW) Process in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-T-4112-4, to tack weld 1 each 35 mm and 2 each 30 mm I-Ribs on to Deck Plate Sub-Assembly DP625-001. The QA Inspector randomly observed ZPMC QC monitoring weld parameters. The weld parameters appeared to comply with contract requirements.

OBG Bay 4:

The QA Inspector randomly observed ZPMC welder Han Kun ID Number 066751, utilizing the Flux Cored Arc welding (FCAW) Process in the 3G (Vertical Groove) Position with ZPMC WPS WPS-B-T-2233-U3-F, to weld the butt splice of 15M Tower Diaphragm Flange Plate Assembly ESD1-SA313 between piece marks p420 and p1248 at WJ 12A. The QA Inspector randomly observed ZPMC QC under the supervision of ZPMC CWI Zhao Chen Sun monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 215 amps, 25.8 volts with a travel speed 114 mm/min. The weld parameters appeared to comply with contract requirements. The attached photograph provides additional detail.

The QA Inspector randomly observed ZPMC welders Han Guodong ID Number 06259 and Li Shuqiang ID Number 053609, utilizing the FCAW Process in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-T-4132, to weld Tower Diaphragm Flange Plate Assembly SSD1-SA276 to the diaphragm at WJ SSD1-SA276-9. The QA Inspector randomly observed ZPMC QC under the supervision of ZPMC CWI Zhao Chen Sun monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 308 amps, 31 volts with a travel speed 305 mm/min for Mr. Han and 310 amps, 30.8 volts with a travel speed of 300 mm/min for Mr. Li. The weld parameters appeared to comply with contract requirements.

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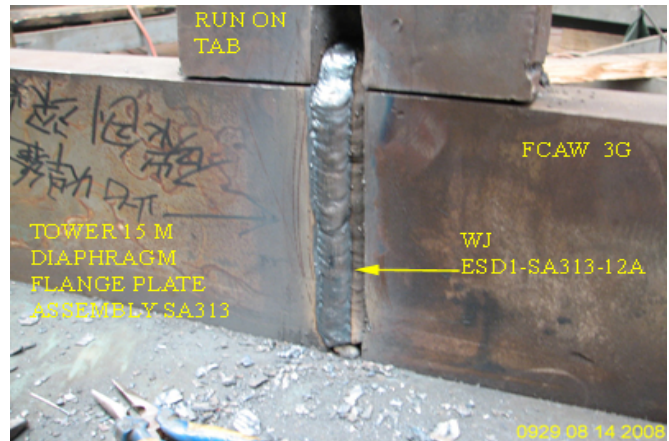
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### OBG Bay 7:

The QA Inspector randomly observed ZPMC welders Zhang Liang ID Number 067036 and Zhang Qingquan, utilizing the FCAW Process in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-T-2132-3 with semi-automatic welding apparatus, to weld either side of stiffener X2T-5 on Floor Beam Sub-Assembly FB032-001 at WJ's 120 and 121. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters. The weld parameters appeared to comply with contract requirements.

### Bay 8:

The QA Inspector randomly observed ZPMC welder Jiang Yong Sheng ID Number 045240 utilizing the FCAW Process in the 2G (Horizontal Groove) Position with ZPMC WPS WPS-B-T-3312-TC-P5, to weld Web piece mark p9741 to 38 M Bottom Tower Diaphragm at WJ ESD1-SA371B/B-8. The QA Inspector randomly observed ZPMC QC monitoring weld parameters. The weld parameters appeared to comply with contract requirements.



### Summary of Conversations:

As noted in the above body of this report.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco 13816942685, who represents the Office of Structural Materials for your project.

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**Inspected By:** Franco,Charlie

Quality Assurance Inspector

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**Reviewed By:** Carreon,Albert

QA Reviewer